

Lost to Follow-up: the Problem of Defaulters from Diabetes Clinics

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Diabetes mellitus requires lifelong self-management with regular health professional support and supervision. Estimates of the prevalence of failed appointments at diabetes clinics vary but at less than 10 % appear to be lower than for other non-chronic conditions. Yet the patients who do not attend have significantly more risk factors and complications than those who keep their appointments. In addition, failed appointments reduce clinic efficiency. To date, research on non-attendance for health care has largely focused on the characteristics of defaulters and evaluation of simple interventions aimed at directly altering their appointment-keeping behaviour, such as mailed reminders. However, like the broader issue of adherence, there are many factors that predispose to non-attendance ranging from patient health beliefs and attitudes of health professionals, the organization of the clinic and the financial costs of attendance, to the degree of patient participation within consultations. Consequently, there is a range of strategies from patient reminders and induction videos, logistical and administrative changes in the clinic, to training in consultation skills for health professionals that have the potential to decrease the numbers of patients lost to follow-up. Whether these will reduce morbidity efficiently should be the subject of further work. © 1998 John Wiley & Sons, Ltd.

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Introduction

Diabetes mellitus is a common, expensive condition requiring regular, indefinite and structured follow-up and surveillance by health professionals.¹ Non-attendance by patients at diabetes clinic appointments may be associated with a worse prognosis for the individuals concerned² but may also have an impact on the health of others through the disruption of scheduling, inefficient use of scarce resources (particularly the health professionals' time) and adverse effects on learning, research and practitioner–patient relationships. Given the low level of adherence to diabetes regimens,^{3,4} and the high level of non-attendance at health care appointments generally,^{5,6} failed diabetes clinic appointments are likely to have an important impact on the efficiency of the clinic and perhaps also the health of the population it serves. The aim of this study was to review the literature on defaulting from diabetes clinics, so as to identify its prevalence, the features associated with defaulting (from risk factors to the apparent sequelae of missed appointments), the reported views of patients and health professionals, the nature and effectiveness of strategies to reduce the number of patients being lost to follow-up, and the implications for service delivery and research.

Search Strategy

Computerized searches of Medline, Embase and Cinahl, from their year of inception to October 1997, were undertaken using the search terms listed in Table 1, to identify published reports concerning defaulting from health care, irrespective of study design, methodology, setting or the type of subject. When a search term identified more than 150 reports, it was limited first through the addition of the thesaurus term 'diabetes', followed by specification of English language, human subjects and review article. In addition, the Medline database was searched for relevant articles in the journal *Social Science & Medicine* using the same search terms but without any limiting categories.

The titles and abstracts of 1584 reports were assessed for relevance and 159 citations in which non-attendance for health care appointments was a key theme of the paper were saved. Reprints of the most relevant papers identified through the electronic search were obtained and one round of manual citation searching undertaken. A total of 59 papers were reviewed in full.

Types of Study Identified

The specific issue of clinic non-attendance among people with diabetes was the main topic addressed in eleven of the identified studies, although only one was a controlled trial.⁷ The remainder described the prevalence and characteristics of defaulters. The main findings of

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Table 1. Search terms used for the review

Medline	Embase	Cinahl
<p><i>MeSH terms</i> patient acceptance of health care + appointments and schedules</p> <p><i>MeSH terms + Social Science & Medicine.jn</i> patient acceptance of health care appointments and schedules</p> <p><i>Text words</i> missed appointment failed encounter</p> <p><i>MeSH terms + diabetes (MeSH term)</i> treatment refusal appointments and schedules patient acceptance of health care (human, English language, review) patient compliance (human, English language, review)</p> <p><i>Text words + diabetes (MeSH term)</i> non attend* default* lost to follow-up patient dropouts did not attend clinic attendance</p> <p><i>Text words + Social Science & Medicine.jn</i> non attend* default* lost to follow-up patient dropouts did not attend clinic attendance</p>	<p><i>Search term</i> patient dropouts broken appointment* missed appointment* default* appointment* fail* attend* treatment refusal + appointment no show* + appointment*</p> <p><i>Search term + diabetes</i> default* non attend* patient compliance + appointment* patient adher*</p>	<p><i>Search term</i> patient dropouts appointments and schedules defaulter* non attend* broken appointment* missed appointment* appointments and schedules + fail*</p> <p><i>Search term + diabetes</i> continuity of patient care patient care plans treatment refusal clinical assessment tools patient compliance did not attend*</p>

jn = journal; * = word stem.

these studies are summarised in the second part of this review.

The majority of the research on defaulting has been undertaken in North American hospital outpatients and primary care centres, perhaps due to the financial implications of patient non-attendance for practitioners in that setting. The research has focused on those who receive health care rather than those who deliver it, or the environment in which it is delivered. Many attempts have been made to identify features of patients that are associated with non-attendance. Although this may draw attention to an at-risk group, it does reinforce the paternalistic notion of defaulting being caused by ignorance, or failure on the part of patients, a view held by some health professionals.⁸ This notion is revealed in the prevailing, value-laden terminology (non attender,⁹ defaulter,¹⁰ no show,¹¹ lapser,¹² delinquent¹³ and dropout¹⁴) and reflects the predominant theme of the early work on compliance, of which defaulting is a discrete part. As Frankel points out, the recurrent question in the published research, with its obvious implicit assumptions, has been 'why do patients fail to attend?'¹⁵ In fact, as will become apparent, the underlying reasons for defaulting and the areas for effective intervention

involve the health professionals, and systems in which they operate, as well as the patients.

Non-attendance for Health Care

Size of the Problem

Studies investigating non-attendance may not exhibit great methodological diversity, but specific issues of method, such as sample selection, setting, and definition of the main outcome measure do vary. For example, in assessing the proportion of failed appointments, the denominator has been defined in several different ways, from scheduled or total appointments to the numbers of individual patients defaulting.¹⁶ It is therefore not surprising that a range of values are quoted for the extent of non-attendance, even in review articles. Failed appointments were around 15–30 % in the majority of studies in general adult and paediatric clinics,⁵ as low as 5–11 % in some family practice clinics,⁶ but an average of 42 % in an overview of intervention trials which included appointments for screening tests and mental health clinics.¹⁷

Estimates of the size of the problem, in terms of

associated preventable morbidity and mortality, are also unclear and inconsistent. The associations between non-attendance and social class, educational level and so on, described below, might suggest that defaulters are at greater risk of morbidity even before missing their appointments. However, patients who rarely see their family doctor, even when invited, tend to have better perceived health and lower levels of morbidity than more frequent attenders.¹⁸ For example, patients who defaulted from a Boston ambulatory care centre were subsequently no more likely to develop new medical problems or exacerbate old ones than attenders. In fact, when followed up, non-attenders were more likely to report feeling better.¹⁹ Similarly, in a case-control study of non-attendance at new outpatient appointments, defaulters were neither more disabled nor suffering from more serious conditions than attenders.¹⁵ The pursuit of non-attenders, particularly for screening programmes, may not be a cost-effective way of achieving overall population health gain.²⁰

Features Associated with Non-attendance

In spite of the aforementioned diversity, some degree of consensus about which variables are associated with defaulting has emerged. This has enabled accurate prediction of non-attendance based on a handful of features recorded in patients' notes or referral letters, which facilitates planning for more efficient clinics.^{11,21,22} The findings of these studies are summarized in Table 2. Many of the studies undertook univariate analysis, hence associations may be confounded. An important example is the purported association between race and non-attendance, identified by some authors,^{11,23–28} which was not demonstrated by others and can probably be accounted for by differences in age, educational level and social class,^{29–36} or, on even closer scrutiny, by the deficiencies of the medical facility with respect to communication with particular ethnic groups.^{27,37} In addition, there may be a host of other plausible, but infrequently evaluated, reasons for apparent default by specific groups, over and above the barriers created by difficulties with language. An example might be the cultural inappropriateness of some of the advice given routinely by health professionals.

Summarizing the data from the studies in Table 2, we can conclude that failed appointments are more common among young, poorly educated patients, with high rates of consultation and prior missed appointments, who have little knowledge about their condition, come from low socio-economic groups, and live in large unstable families without access to a telephone or convenient mode of transport. Furthermore, patients who do not attend are less likely to have troublesome physical symptoms but more likely to have psychological problems. The failed appointment is likely to be for screening or follow-up rather than for a specific treatment. It will have been initiated many months previously by a

health professional rather than the patient. The health professional would have communicated the need for the appointment poorly, the patient would have been kept waiting for a considerable time, been dissatisfied with the consultation, and would be unlikely to see the same professional again.

Health Professional and Patient Explanations for Non-attendance

In spite of the fact that physicians are unable accurately to predict an individual patient's compliance with therapy, there has been a tendency to apportion blame for non-compliance on the patient.⁴ Not surprisingly, non-compliance is a source of understandable frustration for practitioners. Unfortunately this can lead to the adoption of approaches that simply exacerbate the problem.³⁸

Although difficult to obtain and hence rarely representative, the views of patients, collected by questionnaire or interview, provide alternative valid explanations for non-attendance in addition to simple forgetfulness, which is acknowledged by patients.³⁹ The commonest reasons included administrative error, or problems with scheduling and communication in the hospital which were frequently cited by patients,^{15,19,39–42} as were financial and transport problems and difficulty in getting time off work.^{15,19} Furthermore, some patients either felt too well and that the visit to the clinic was unnecessary, in which case the need for the appointment may not have been clearly explained, or alternatively felt too ill to attend.^{15,19} In one study, over a quarter of patients reported being on holiday at the time of their appointment.¹⁵

Non-attendance at Diabetes Clinics

Size of the Problem

Definitions of non-attendance vary, as do opinions and data (published between 1982 and 1994) on the extent of non-attendance and associated preventable morbidity and mortality. The reported prevalence of defaulting for at least a year from diabetes clinics in English hospitals ranges from 4 %¹⁰ to 18 %, ⁹ with similar levels in Italy.¹⁴ However, the figure may be higher in North America,^{13,43} and over 40 % non-attendance has been reported from an Irish hospital diabetes clinic⁴⁴ and from a retinal screening service in Oxford.⁴⁵ Even when particular attention was paid to teamwork, dietary and educational assessment, and goal setting as in the hospital diabetes clinic in North Tyneside, 8 % of patients still failed to attend for annual review.⁴⁶

Scobie *et al.* identified 4.8 % of a London teaching hospital clinic population that had not attended for at least 13 months.⁴⁷ However, it transpired that the majority had been under general practitioner supervision, or died, moved to another clinic or area, or they subsequently

Table 2. Reported associations between non-attendance for health care appointments and socio-demographic and clinical characteristics

Characteristics	Study reference number	
	+ve association	–ve/no association
<i>Patient socio-demographic features</i>		
Young age	11,15,21,23,24,27–29,31–33,37,50,67,69,110–118	12,23,35,44,75,119,120
Male gender	21,113	12,23,34,37,44,67,75,111,120
Race	11,23–28	29–37
Low socio-economic status	23–26,36,50,88,112–114,118,121–124	15,34,37,49,72,125
Low educational level	24,27,32,36,50,114,123,127	115,125
Large unstable family	24,25,27,35,36,114,118,121,123	
Mode of payment/insurance	25,28,69,110	37,49,127
No telephone	73,81,119,126,127	
Not severely impaired or in full-time work	69	
<i>Patient clinical features</i>		
Problems with alcohol or drugs	128	
Doctor-identified psychological/psychosocial problems	11,19,25,31,117,119	
Reduced likelihood of having chronic disease	19,27,67,122	24,25,129
Reduced likelihood of being on long-term medication	19	
High cost, duration and side-effects of treatment	130	
Reduced likelihood of being symptomatic	94	
Low knowledge about disease	32,99,130	
Health beliefs	32,116,131	
<i>Features of the appointment</i>		
Appointment for screening/supervision not treatment	31,33,34,67,115,122	
Specialty	120	
Doctor-initiated appointment	111	
Source of referral (e.g. casualty)	21,117,122,132	
Poor communication about the appointment	37,40,76,132	
Long interval to appointment	21,67,69,72,75,80,117,120,122,132–134	15,25,34
Long waiting room time	24–26,72	
Previous non-attendance	11,15,22,113,115,119,121,132	
Previous high appointment rate	27,28,31,111,119,121	
Late for previous appointments	11	
Season, day, time of appointment	111,115,117,135	27,37,67,69
<i>Features of the environment</i>		
Poor weather	136	24,27,88
Poor availability of transport	23,25,69,72,123	
Distance from the clinic	21,30,121,136	27,31,49
<i>Features of the health professional/patient relationship</i>		
Patient satisfaction with the consultation	25,27,124,134	
Inability to talk to doctor	25	
Poor continuity with health professional	25,31,72,130	
Health professionals attitude and behaviour	99,128	

returned to the clinic when re-invited. Only 0.3 % (none of whom were insulin treated) of the clinic population were receiving no medical supervision.⁴⁷ A similar picture emerged from an Irish hospital, where 51 of the 55 insulin-dependent patients, who had not attended for at least a year, returned to the clinic on receipt of a formal written invitation.⁴⁴

Annual non-attendance at a Wolverhampton hospital clinic was 4.1 % but over a third of the group studied (Caucasian defaulters less than 63 years of age) had moved away or died.¹⁰ The remainder of the non-insulin-

dependent defaulters were more obese, had higher blood pressure and more microvascular complications than clinic attenders matched for age, gender, duration of diabetes and type of treatment. Only 25 % of apparent defaulters had seen their GP regarding diabetes and none recalled undergoing fundoscopy.¹⁰ The situation was similar at an Italian hospital clinic with 17 % of patients dropping out and only a quarter of these receiving any form of screening for complications.¹⁴

Archibald and Gill compared the notes of 37 consecutive regular attenders with 37 of the 45 patients who

were re-referred to the hospital clinic, having 'lapsed' from follow-up for an average of 26 months.¹² Not surprisingly, given the small numbers, there were no significant differences in gender, age, diabetes duration or mode of treatment between the two groups. However, those who had 'lapsed' had significantly worse glycaemic control and more micro- and macro-vascular complications. There was almost certainly an element of selection bias, family doctors only sending those at greatest risk back for hospital supervision, nevertheless the fact that 38 % of the 'lapsed' group had developed significant new problems in just over 2 years is of concern. Furthermore, although the actual number of patients who 'lapsed' and were re-referred was a small proportion of the total clinic population (3.3 %), it represented 19 % of the new patient diabetes clinic, underlining the impact of non-attendance on clinic efficiency.¹²

Jacobsen and colleagues reported that 34 % of insulin-dependent patients with an appointment at Harvard had defaulted (defined as attending less than 3 diabetes-related appointments over the preceding 2 years).⁴⁹ No significant differences in social and demographic factors were found between regular and infrequent attenders, although numbers were small and patients were mainly well-off and privately insured. However, infrequent attenders were more likely to have health beliefs that undermined the role of the physician, that is to say they were less likely to want advice or provide opinions about their diabetes care, a finding consistent with subsequent qualitative work.⁴⁸ In addition, infrequent attenders had significantly higher glycosylated haemoglobin.⁴⁹

The association between infrequent clinic attendance and adverse clinical outcomes and risk factor status in diabetes care is consistent,^{2,10,12,13,45,49-52} although exactly what constitutes an adequate frequency of attendance is unclear, with wide variation in the recommended follow-up intervals between individual doctors.^{53,54} It is tempting to interpret the association simply as the poor patient prognosis being a direct consequence of reduced health professional supervision for defaulters, but an alternative explanation, that patients discouraged by relapses and negative outcomes are more likely to default from care, could also be a factor.¹³

Thus, defaulting may be less common at diabetes clinics than clinics for other conditions. However, the patients who, for a variety of reasons, do not attend exhibit greater risk factors and more advanced disease than those patients with adequate follow-up.

Features Associated with Non-attendance

Diabetic patients on diet treatment who live far from the clinic and smoke¹³ and have poor education⁵⁰ may be more likely to default from diabetes clinics. However, in contrast to the consistent association between non-attendance and prognosis, there appear to be few, if

any, significant relationships between defaulting from diabetes clinics, and socio-demographic characteristics.^{10,12,49} This may be attributed, at least in part, to underpowering of the studies but it certainly contradicts the broader literature on non-attendance.^{5,11} Perhaps, like the variation in outcomes of this largely self-managed condition, the variation in non-attendance is explained by differences in patients' attitudes, beliefs and perceptions rather better than by demographic characteristics.⁵⁵

Patients' Views on Non-attendance

Response rates for questionnaires and interviews among defaulters, if reported at all,⁹ tended to be low.^{10,12} However, the studies, including a telephone questionnaire from Italy with a 93 % response,¹⁴ produced broadly similar conclusions. Respondents reported that clinics were too crowded and not particularly helpful, waiting times were too long, patients saw a different doctor on each visit and rarely saw the consultant.^{9,10,12} The commonest reasons given by patients for missing appointments included being too ill to attend, being away at the time, or attending follow-up with their general practitioner.⁹ Furthermore, many patients reported difficulties with finance, getting to the clinic and getting time off work,^{9,10,12-14,43,50} particularly in areas of poverty,⁵⁶ although this was not a universal finding.⁴⁹ There was also confusion about the role of hospital diabetes clinics. When interviewed, nearly a third of defaulters with non-insulin-dependent diabetes felt that they were not ill enough to require hospital follow-up.^{10,14} Of course, when answering questions concerning the reasons for missed appointments, there may be some self-justification and rationalization by patients, although some did acknowledge their own forgetfulness. Nevertheless, there appears to be potential for reducing some of the barriers to attendance through changes in the organization and delivery of care in diabetes clinics.

The search strategy identified few qualitative studies addressing the behaviour, beliefs and attitudes of people with diabetes towards clinic attendance. Most patients believe diabetes to be a serious condition.^{48,57} However, given their perceptions of diabetes and its personal implications, this belief was compatible with an apparently non-compliant approach to medical advice.⁵⁷ Non-adherent behaviour, such as non-attendance, which health professionals regard as irrational, may be the result of a cogent cost-benefit analysis, or careful assessment of the balance between the pursuit of health and the compromise of well-being, when seen from the patient's point of view.^{58,59} Patients and professionals are known to have different explanatory models of diabetes and consequently place emphasis on different aspects of the condition, for example the impact on everyday life as opposed to the physiological effects of hyperglycaemia.⁶⁰ A better understanding of patients' beliefs and attitudes may assist health professionals to increase the motivation, understanding and adherence

of people with diabetes to treatment and follow-up regimens.⁴⁸ Even if patients' health beliefs are congruent with those of the health professional in specific areas, if the perceived costs or adverse consequences (financial, emotional and so on) are greater than the potential benefits, non-attendance remains likely.^{16,51} Differentiating a patient who is rationalizing their non-attendance from one who has an understanding of the cognitive processes by which they arrived at the decision not to attend is problematic. Indeed, in the case of asthma, much of the variation in prophylactic medication adherence has been explained by the extent to which patients remained in denial of their chronic illness.⁶²

People with diabetes and health professionals clearly have different perspectives on the importance of the various aspects of care. Patients place great emphasis on accessibility, continuity and the practitioners' ability to give clear information, and perhaps as a consequence, when consulted, express a preference for care in the community.⁶³⁻⁶⁵ This may explain, at least in part, the near three-fold difference in non-attendance, reported in a meta-analysis, between hospital and general practice-based follow-up, once satisfactory systems for recall were in place in primary care.⁶⁶

Interventions to Reduce Non-attendance

Patient Interventions

Intervention studies have been quite limited in scope, the majority focusing on interventions directed at the patient, such as appointment reminders. The only trial specifically addressing patient attendance at diabetes clinics involved 854 non-institutionalized people with diabetes, aged over 15 years, treated with insulin or oral hypoglycaemic agents, who had attended the hospital outpatient department in Indianapolis within the previous year and had another scheduled appointment.⁷ Patients were stratified by risk of subsequent hospital admission and randomly allocated to intervention or control groups. The intervention consisted of mailed appointment details including the names of the doctor and nurse, location and contact details for the clinic and also a card listing diabetes warning signs. After two weeks this was followed by a mailed 37-page booklet entitled *Managing Your Diabetes*. A week before the scheduled appointment each patient was sent a postcard reminder. The final aspect of the intervention involved contacting those patients who missed their appointments, by telephone, letter or home visit. The intervention, which was estimated to cost just over \$10 per patient per year, produced small but significant increases in kept scheduled visits, total contacts and scheduled appointments over the subsequent 2 years. The overall reduction in missed appointment rate did not achieve significance. However, among those at highest risk of admission missed appointment rates fell by 20 % (from 26.8 % to 21.5 %).

Admissions to hospital and duration of stay were unaffected.

Similar interventions, in a variety of settings, have produced more impressive reductions in failed appointments when applied to groups of patients without diabetes. Telephone or mailed reminders shortly before an appointment have consistently been shown to reduce non-attendances by as much as 76 %, ^{34,67-78} particularly if the patient's family have poor time management skills,⁷⁹ although the effect size has not always achieved statistical significance,⁸⁰ the initial success may wane over time as demonstrated by Morse *et al.*,⁸¹ and there have been exceptions.⁸² Mailed reminders are cheaper than those administered by telephone but equally as effective.³⁴ Contacting patients after their appointments to find out why they had not attended and to offer a new appointment did not seem to produce similar benefits.^{27,69}

In a smaller randomized trial involving 227 low income patients attending a diabetes clinic, those who accepted an offer of a home health aide had improved glycaemic control and reduced defaulting from the eye clinic compared with those without such an offer.⁸³ This is in keeping with findings in the more general literature where interventions that reduce costs and perceived barriers improve compliance, including appointment attendance. Such interventions have included the involvement of a bicultural community health worker⁸⁴ and financial incentives.⁸⁵

An alternative intervention, also aimed at altering patients' appointment-keeping behaviour, is pre-therapy induction. When patients were shown an orientation video which described the general function and process of the clinic, non-attendance in both outpatient clinics and primary care was significantly reduced, although if similar information was given in pamphlet form there was little effect.⁸⁶ If, in addition, the video emphasized the importance of keeping appointments and the ramifications for patients of persistent non-attendance the effect was even greater, with failed appointments falling by up to 50 %.⁸⁷

Organisational Interventions

When efforts have been made to adjust clinic systems, for example by providing individual time rather than block appointments, waiting times and no shows have been reduced. Such changes have also facilitated better prediction and control of the periods when doctors were not actively consulting.⁸⁸ Another way in which clinic organization can make a difference is with physician (or team of physicians) continuity, which is known to be positively correlated with appointment keeping.^{25,72,89} The impact of changes in the organization of care on non-attendance has also been demonstrated in the trials comparing general practice and hospital routine diabetes care. The introduction of efficient registers and recall systems, with prompting of both patients and health professionals to carry out annual reviews, seems to have

contributed to the enormous difference in losses to follow-up between the early and later evaluations of general practice diabetes care.⁶⁶

Professional/Patient Communication and Relationship Interventions

Consultations exhibiting greater patient and less physician control and greater opportunity for patients to express negative affect are associated with increased patient satisfaction, greater provision of information by the physician in response to effective patient information-seeking and better overall patient health (assessed physiologically, behaviourally and subjectively).^{90–92} Furthermore, the nature and quality of the relationship between the health professional and patient are known to be related to patient adherence.^{93–95} More specifically, when doctors allow patients to act as partners in the consultation, so that patients are more talkative and ask more questions, then the patients are better able to memorise and follow doctors' instructions,⁹⁵ which in turn leads to improved medication adherence.^{92,96,97} This is likely to be an over-simplification of the process and consequently the relevant associations have not always been demonstrated.⁹⁸ Nevertheless, the beneficial effect of this patient-centred approach has also been shown to apply to the specific area of adherence under consideration in this review: attendance by people with chronic disease at clinic appointments.^{99,100} It is therefore not surprising that there has been a shift from the compliance-orientated approach to management and education in chronic disease to a more empowering model which aims to prepare patients to make informed decisions about their self-care.¹⁰¹ This change in approach obviously requires appropriate attitudes, knowledge and skills on the part of health professionals. Fortunately, improving diabetes educators' counselling skills and changing their attitudes through a professional education programme appears to be feasible.¹⁰²

Various strategies have been employed to increase patient involvement and participation, including a simple written message from physicians to patients encouraging questions,¹⁰³ facilitated preparation for the consultation^{91,100} and training for health professionals in patient-centred care.¹⁰⁴ When such interventions aimed at altering doctor–patient communication have been evaluated, most have been associated with improved patient outcomes, with those aimed directly at patients achieving improvements in a wider range of outcome measures than those focusing on health professionals.¹⁰⁵ In a trial of one such approach in which defaulting was a main outcome, low income, elderly, black, female chronically ill patients at a Baltimore family and community health centre were subjected to a 10-minute session with a health educator prior to their consultation. In this session patients were helped to identify questions concerning their illness or treatment and this led to more direct question-asking during the consultation and higher

appointment-keeping ratios over the subsequent 4 months than in the control group.¹⁰⁰

The effect of patient-centred care on adherence may be a direct one or it may be mediated through patient satisfaction¹⁰⁶ or increased patients' understanding of their disease and its management. Further investigation of the patient and physician behaviours that contribute to the process of patient participation and the mechanisms by which patient participation affects adherence should provide a means to refine such behavioural interventions.¹⁰⁷ Not surprisingly, the majority of this type of work has focused on issues of communication in relation to consultations with doctors. This is in spite of the fact that, as already mentioned, interventions operating at alternative interfaces between patients and providers have reduced non-attendance. Perhaps the patient-centred model could be applied from reception through the whole organisation.

Other Potential Interventions

There is considerable scope for intervention at the level of the majority of features associated with failed appointments (listed in Table 2), as well as the reasons given by patients for non-attendance, thereby potentially reducing defaulting. For example, it seems likely that more accessible, uncrowded clinics with good transport links, ample free parking space, friendly staff and atmosphere, more convenient clinic times, reduced delays between referral and appointment and reduced waiting times within the clinic would lead to lower rates of defaulting. Furthermore, older, better educated, more affluent patients are known to be less likely to miss appointments and although such factors are not subject to influence from health professionals, awareness of them may highlight those patients at greatest risk of non-attendance. It might be possible to justify specific interventions such as outreach community clinics for areas with high social deprivation, isolation and prevalence of both diabetes and defaulting, and diabetes specialist nurses for the forgotten population of institutionalized elderly.¹⁰⁸ Although many of these approaches seem self-evident, there is a paucity of trial data to support their introduction into routine practice.

The studies of non-attendance at diabetes clinics described above also suggest that more effective communication between primary and secondary care, and between health professionals and patients, could reduce both apparent and real losses to follow-up. This might include more accurate registration and checking of patients' demographic details and dates of planned holidays, unique patient identifiers, better integration of care across existing professional boundaries to help reduce duplication of arranged appointments and processes of care by different providers, and improved consensus regarding optimal follow-up intervals. The simple act of systematically identifying and formally re-inviting non-attenders can greatly reduce the size of the

problem.^{44,47} Effective communication, interpersonal or via a range of media, should reinforce to patients the rationale for continued follow-up. This could also be enabled by better training for health professionals in recognizing and working with patients' health beliefs, as well as the previously discussed patient-centred method. Perhaps a way could also be found of stressing the importance of appointments for diabetes follow-up to employers, albeit in a way that preserves patient confidentiality. Unfortunately, relapses and deterioration are an inevitable consequence of all chronic disease; approaches to help practitioners and patients acknowledge and deal with this could also form part of a strategy to decrease defaulting.

Of course, it is not certain that interventions that reduce non-attendance at diabetes clinics will necessarily reduce overall morbidity, although where clinical outcomes were assessed in the trials, they tended to improve in parallel with attendance. In fact, even if clinic attendance does reduce patients' longer term risk, in the short term improved attendance may uncover an increased burden of treatable risk factors and complications.¹⁰⁹

Conclusions

This review is limited by the pragmatic nature of the search strategy. Given the nature of the bibliographic databases used it is likely that data and opinion from the social sciences are under-represented. However, it was somewhat reassuring that few new and relevant studies from the biomedical literature, in particular no studies concerning non-attendance at diabetes clinics, were identified by the final manual citation searching phase.

Non-attendance at health care appointments in general is common but does not necessarily lead to increased morbidity and mortality. Non-attendance at diabetes clinics may be less prevalent but seems to be more strongly associated with adverse patient outcomes. A range of interventions are known to reduce the numbers of failed health care appointments and those aimed at influencing patients' appointment-keeping behaviour directly, such as mailed reminders, have been most frequently tested. However, changes in both the organisation and delivery of care and the health professional-patient relationship may be capable of additional, even greater reductions in the numbers of patients lost to follow-up.

Further research into failed appointments is needed, especially in relation to the increasing numbers of patients with chronic diseases such as diabetes. In general, the focus of the research should move away from appointment reminders towards interventions targeting the delivery of health care and the health professional-patient relationship, which are likely to be stronger predictors of default. However, few of the existing studies have specifically involved people with

diabetes, hence evaluations of interventions which have worked empirically in other settings may be necessary for this particular group. Better descriptions and more rigour are necessary with respect to sampling, the measurement of potential confounders and effect modifiers, the theoretical basis and development of interventions and the definition and measurement of outcomes, including short- and long-term costs. In addition, there is also scope for more qualitative studies, further insights are likely to be gained from investigation of non-attendance at diabetes clinics from outside the health professional perspective.

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